



Date of Application, 22nd July, 1890—Accepted, 18th Oct., 1890

COMPLETE SPECIFICATION.

Improvements in Artificial Tooth Sections and in the Method of Attaching the same.

I, CHARLES HENRY LAND of 271, Woodward Avenue, Detroit, Michigan, United States of America, Dentist, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

5 My invention relates to certain improvements in “artificial dentures,” having in view a novel article of manufacture and a novel process of applying the same, all as more fully hereinafter described and claimed and more particularly illustrated in the accompanying drawings, in which:—

Figure 1 is a side elevation showing a defective tooth.

10 Figure 2 is a similar view of a tooth repaired.

Figure 3 is a separate view of my improved section showing the biscuit surface.

Figure 4 is a modification where a crown is applied to the tooth.

Figure 5 is a view of the matrix.

Figure 6 is a separate view of a section having a metal surface.

15 Figure 7 shows a crown with a metal surface.

Figure 8 is a modification.

Figure 9 shows a veneer built up with porcelain body.

Figure 10 shows a section having a porous face.

Figures 11, 12 and 13 illustrate modifications.

20 Figure 14 shows a gum section united to a base.

It is well known that the compound commonly called amalgam, being a composite of mercury and other metals, has a peculiar affinity for gold and silver, and readily unites therewith. Amalgam is therefore a desirable means for attaching a section or plug to a tooth.

25 I carry out my invention as follows:—

A, represents a tooth cavity or lost portion of a tooth to be filled or built up as the case may be. The tooth being properly prepared in the usual manner, I burnish or swage thereupon a piece of platinum foil, to form a matrix or mould. The foil may be conformed either to a cavity or to the surface of a decayed or defective tooth, and
30 either for the formation of a filling section, or a crown or partial crown, or any other desired tooth section.

By the aid of this matrix, I form a tooth section of desired form and of any desired material. Thus, for example, I may mould, upon said matrix or there-into, porcelain body or paste, which, when fused, shall constitute the desired
35 section. I would have it distinctly understood, however, that I do not herein limit myself to any specific material solely, in the construction of said tooth sections, as my vitreous or other suitable substance, as porcelain, glass, metal and anything else found suited to the purpose may be employed within the scope of my invention. Accordingly, B denotes the matrix, and C an artificial tooth section of any required form and
40 material. Upon the sections so constructed, I fuse a coating of gold, as at D. In order to make the gold adhere to the tooth section, my invention contemplates, as one of its features, a more definite construction also of said section, although I do not limit myself exclusively thereto.

Instead of building up the entire artificial tooth section from the matrix as a mould
45 by the use of plastic or molten material, I design, wherever desired, to select a suitable artificial veneer which may constitute a crown, a partial crown or other section. A lining of porcelain body may then be employed to conform the veneer to the matrix, said body being applied between the veneer and the matrix and fused upon the veneer. The veneer will ordinarily have a glazed surface, upon which a coating

Land's Impts in Artificial Tooth Sections and in the Method of Attaching the same.

of gold is not so readily attached, but it will be evident that the porcelain body fused thereto will be when completed in the nature of what is called a "biscuit," and of a more porous nature than the glazed portion, and upon this unglazed surface, the gold may be very readily fused. Accordingly, as illustrated more particularly in Figure 9, C¹ denotes such a veneer. 5

C², the coating or lining of porcelain body or paste fused thereupon, and upon which, as at D, the gold is fused.

So also, instead of selecting a veneer of any desired form, the tooth section may be built up in a desired manner and of desired form, the same being fused and glazed to constitute the tooth section, after which a suitable coating of the porcelain paste C³ 10 may be applied to the required surface, the section being again subjected to the furnace to fuse the applied coating of paste to a biscuit, the gold being thereafter fused thereupon. The gold may, however, be applied to the section in any desired manner.

An artificial section, having gold fused thereupon, may constitute an article of 15 manufacture, and be furnished to dentists of any required form suited for all varieties of needs, as fillings, crowns, partial crowns and the like, ready for use, or which may be readily adapted for use as occasion arises. A section so made is applied to the tooth by means of amalgam, which will, as already described, readily unite with the gold and firmly and securely hold the section in place. 20

By this means, the use of ordinary cements is avoided, and which, owing to the well known liability of said cements being dissolved and washed out by the action of the fluids of the mouth, becomes a matter of greatest importance, as the amalgam is not exposed to any such liability, but is durable and permanent.

The amalgam union is indicated at E. 25

It will be obvious from the foregoing that a solution of gold worked into and over a porous surface, as described, would become more thoroughly united therewith, than if the tooth section had simply a glazed surface, adding, in a large measure, a mechanical attachment. Any vitreous substance may readily be so used in the formation of a tooth section by providing the same with a "biscuited" surface. I have discovered 30 that a gold solution such as is used in the ordinary decoration of china ware will adhere in a measure to glazed surfaces, as of glass, for example. However, my improvements go still further by adding, preferably to the glazed surface, a semi-vitreous or biscuit surface, or technically speaking, a porous surface, as is well known in the usual biscuit ware turned out by porcelain manufacturers, thereby providing a 35 more complete method of attaching the metal.

I would have it understood that in many cases the tooth cavity or lost portion may be built up as desired with amalgam before uniting the tooth section thereto.

So, also, the tooth section constructed with a porcelain exterior and metal facing may be further itself built up to larger proportions, or further faced by amalgam before 40 application to the tooth, the amalgam to be further used to set the tooth section in place, uniting with the amalgam face of the tooth section in this instance in like manner as already described.

So, also, a solid section or plug of gold with amalgam attached may be used, or a gold post D¹ attached to the section or analogous attaching device may have amalgam 45 united therewith or be united thereby.

A metal pin or analogous device may likewise in the same manner be amalgamated upon a tooth section, or the fastening be so amalgamated into a root of a tooth. Fastenings of gold, silver, copper or aluminium bronze, or any suitable metal may be employed. 50

Being able to dispense with heat, metals of lower grades, which are very much cheaper, may be employed, and which, in many instances, are very much stronger.

Where a metal has an affinity for amalgam, no further preparation thereof is required in order to effect an amalgam union of the same in place. Where the metal employed for the fastening has not an affinity for amalgam, it may be coated 55 with gold.

Instead of coating the tooth sections with gold, however, they may be coated with

Land's Impts. in Artificial Tooth Sections and in the Method of Attaching the same.

tin or any other metal having an affinity for amalgam. What are known as "inlays," "cavity stoppers," crowns, veneers or facings, including cusp crowns or partial crowns, may thus be put upon the market as articles of manufacture having one or more of their surfaces coated with metal ready to be amalgamated into place.

- 5 So, also, gum sections in like manner may be united to a plate with amalgam, in place of using the customary pins, and I would have it understood that I contemplate gum sections in the use of the term tooth section in the following claims. So, also, a tooth section provided with a gold or metal surface as an article of manufacture might be fastened in place, otherwise than by the use of amalgam, without
10 departing from the scope of my invention so far as the section as an article of manufacture is concerned, as, for instance, a gum section so coated would be useful as follows :—

- A cast metal base could be fitted to the mouth and then the gum sections soldered to the base with a low grade of solder such as is reduced to a lower fusing point by
15 means of bismuth. So, also, the gum section with a gold or other suitable metal coat could be amalgamated to this same class of metallic base. These bases are known in the market as Watt's metal, and various other titles, or such a section might be amalgamated upon a gold base, such a construction is shown in Figure 14, wherein C⁴ is a gum section, and F is a metal base.

- 20 Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is :—

1. As an article of manufacture, an artificial tooth section, having a metallic surface applied in solution on the proximal surface of the said section and fused thereto, said
25 metallic surface constituting a means for attaching said section, substantially as and in the manner described.

2. As an article of manufacture, an artificial tooth section provided with a porous or "biscuit" surface, substantially as described.

3. As an article of manufacture, an artificial tooth section having a porous or
30 "biscuit" surface provided with metal united with said surface, substantially as described.

4. As an article of manufacture, an artificial tooth section provided with a surface of metal and having amalgam united with said metal surface, substantially as described.

5. The process herein described of applying an artificial tooth section to a base,
35 consisting of coating the proximal surface of said section with metal, and uniting the section to the base by means of amalgam, substantially as described.

6. The process herein described of restoring defective teeth, consisting of, first, securing an impression of the surface of the tooth portion to be restored by means of a thin sheet of metal fitted upon said surface to form a matrix or mould, second,
40 causing the tooth section to conform to said mould and hardening said section, third, uniting said section to the tooth by means of amalgam, substantially as described.

Dated this 21st day of July 1890.

WM. P. THOMPSON & Co.,
Of 6, Lord Street, Liverpool, Agents for the Applicant.



FIG 1.



FIG 2.

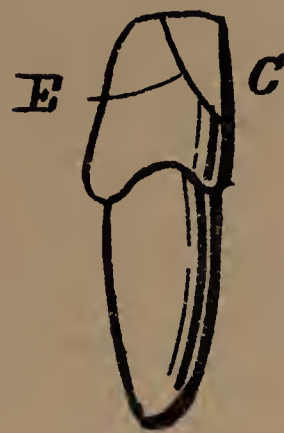


FIG 3.



FIG 4.



FIG 5.

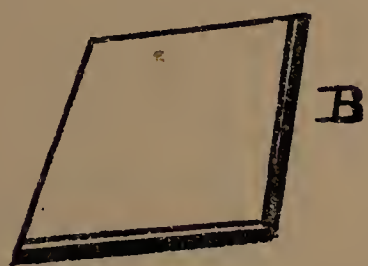


FIG 6.

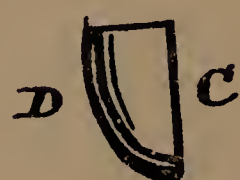


FIG 7.

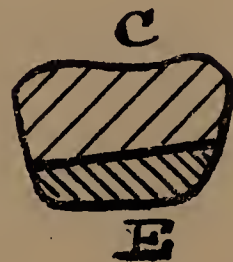


FIG 8.



FIG 9.

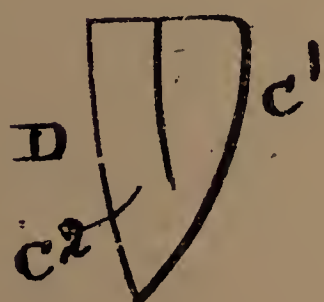


FIG 10.

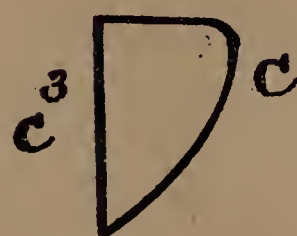


FIG 11.



FIG 12.



FIG 13.

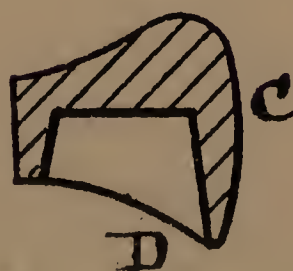
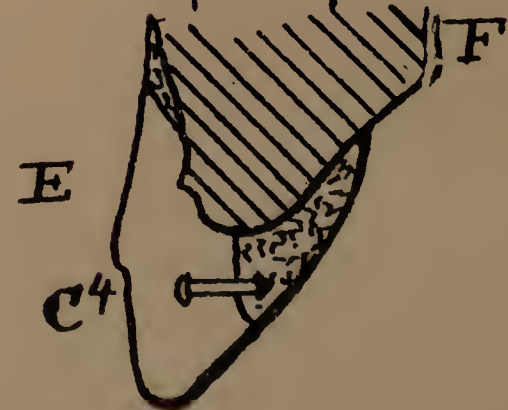


FIG 14.



[This Drawing is a reproduction of the Original on a reduced scale]

